Please Replace Equation (3) on Page 3 to read as follows:

$$n_{TM} = \frac{n_1 n_2}{\sqrt{f n_1^2 + (1 - f) n_2^2}} \tag{3}$$

Please Amend the second full paragraph on Page 4, beginning on line 6 and ending on Page 5, line 2 to read as follows:

As described above, when the period is set to the wavelength or less in the grating portion, diffracted waves are not generated in the progress of the light expressed as an electromagnetic wave. Accordingly, diffraction effect expressed by superposition of waves is not observed. The grating portion is regarded as an object in which a refractive index varies for the progress of the wave, and the grating portion imparts such an effect to the electromagnetic wave as if it were traveling in a material having a virtual refractive index. As a result, the same effect as the thin-film layer is brought in a particular wavelength range. A technique of assuming that the grating portion is a material having a virtual refractive index is called effective refractive index method. For example, a formula for determining an effective refractive index from a grating shape is described in ~~Non-patent Document 2~~ <u>Journal of Optical Society of America A Vol. 13, No. 5, p1013</u>. In the layer with an effective refractive index, a value of the effective refractive index is determined by a ratio of the projection part to the period of the grating portion. The grating portion having rectangular pits and projections also depends on a particular

wavelength band, and design of the grating portion is determined by the ratio and a height of the rectangular pits and projections. For example, as disclosed in Journal of Optical Society of America A Vol. 13, No. 5, p988, or Applied Optics Vol. 36, No. 34, p8935, in order to widen a wavelength band, an effective refractive index can continuously be changed by forming the grating portion in triangular shape with respect to a height direction. The same performance as the effect of laminating many thin-film layers by which the change is continuously imparted, can be obtained by the operation.